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ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. Approximately 83.4 percent of the 77,154 students who took the biology test were in the tenth grade. Students taking biology in the ninth grade (8.3 percent) were on an accelerated track in which chemistry or physics was taken to fulfill the physical science requirement. Eight goals and 33 objectives were identified. Each objective was measured by at least seven items within each classroom. Each biology student took a test containing 66 common or core items and one of five different sets of 34 items during the final days of the school year. The average core score was 39.0 or 59.1 percent correct. On average, the 1988 biology students scored one raw score point higher than 1987 biology students. Average scores differed by parental education, ethnic group, grade level in school, and anticipated final course grade. The select group of students taking biology in the ninth grade had higher average scores than students at any other grade level. The appendix provides the performance in regions and school systems, and state percentile tables. (Author/YP)

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End of Course Testing

Report of Student Performance

BIOLOGY

Spring 1988

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Division of Testing
North Carolina Department of Public Instruction
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ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. The first Algebra I End-of-Course Test was administered in 1985-86. Algebra II and Biology were added to the testing program in 1986-87 and U.S. History was added in 1987-88. Other high school courses will be added in future years.

Most high school students take Biology to fulfill their life science requirement for graduation. Approximately 83.4 percent of the 77,154 students who took the Biology test were in the tenth grade. Students taking Biology in the ninth grade are on an accelerated track in which Chemistry or Physics is taken to fulfill the physical science requirement and three advanced science courses can be completed after the ninth grade.

Each Biology student took a test containing 66 common or core items and one of five different sets of 34 items during the final days of the school year. The average core score was 39.0 or 59.1 percent correct. On average, the 1988 Biology students scored one raw score point higher than 1987 Biology students. Average scores differed by parental education, ethnic group, grade level in school, and anticipated final course grade. The select group of students taking Biology in the ninth grade had higher average scores than students at any other grade level.

Schools and school systems can examine relative performance on the 8 Biology goals and 33 Biology objectives to identify patterns of strengths and weaknesses. Each objective was measured by at least 7 items within each classroom.

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NORTH CAROLINA END-OF-COURSE TESTING PROGRAM

BIOLOGY - 1988

Introduction

North Carolina is in the process of developing end-of-course tests within several subject areas. The purposes of the tests are twofold:

1. The tests will provide information about each individual student's performance relative to that of other students in North Carolina.

2. The tests will provide information about school and school system achievement on the subject area goals and objectives specified in the *Standard Course of Study* and the *Teacher Handbook*.

The development of the end-of-course tests will require many years of effort. End-of-course tests are the final product of a process which includes: curriculum development and review; statewide curriculum surveys; test specification; the writing, review, and field-testing of a large pool of test items matched to objectives in the *Teacher Handbook*; test construction using selected items from the pool; and review, field-testing, and equating of different forms of each test. Several forms of each end-of-course test are developed so that the same tests are not administered in subsequent years.

Based on statewide enrollment patterns and recommendations made by two commissions on education, the end-of-course tests chosen for initial development were Biology and Algebra I. Item pools for these two courses were built in the spring of 1985. The results of the item development phase indicated that the Algebra I items were sufficient in quality and quantity to merit building end-of-course tests. Additional Biology items and an item bank for Algebra II were developed during the 1985-86 school year, including field-testing in selected sites in May of 1986. In addition to Algebra I, both Biology and Algebra II End-of-Course Tests were administered statewide at the end of the 1986-87 school year. U.S. History items were field tested in 1986-87 and the U.S. History End-of-Course Test was added in 1987-88. Geometry and Chemistry items, including proofs for Geometry, were developed and field tested during 1987-88. Current plans are to add the Chemistry and Geometry End-of-Course Tests to the administration of end-of-course tests at the end of the 1988-89 school year.

Although end-of-course tests for different subject areas will vary in length, 110 minutes will be sufficient for administration in all subjects. The State Board of Education requires that end-of-course tests be administered during 110-minute periods within the last 10 days of school, and recommends that they be administered during final exam periods.

The first North Carolina Biology End-of-Course Test was administered at the end of the 1986-87 school year. Five forms of the Biology test were administered within each classroom. Each form consisted of 66 common items (the core test) and 34 variable items. In 1988, five new forms were administered within each classroom. Each form included a new, statistically equivalent, core test (66 items) and 34 new variable items. Comparisons of performance on the core items are appropriately made across individual students. Average core scores at the initial administration of the test in 1987 provide a baseline with which to compare subsequent performance. Statewide performance on the entire set of items (the 236-item curriculum test) provides a standard to which school and school system achievement of goals and objectives can be compared.

Characteristics of Biology Students

Other North Carolina testing programs assess achievement in basic subject areas of an entire cohort or class of students. End-of-course assessments are different in two ways. First, some of the courses are offered to students at different grade levels. Second, some courses are not required of all students; the students who do take the courses are a subgroup of the total student population.

Table 1 compares certain characteristics of Biology students with the population of all enrolled students. The top portion of the table provides the distribution of Biology students at various grade levels compared with the average daily membership in those grades. Most high school students take Biology to fulfill their life science requirement for graduation. Approximately 83.4 percent of the 77,154 students who took the Biology test were in the tenth grade. Students taking Biology in the ninth grade are on an accelerated track in which Chemistry or Physics is taken to fulfill the physical science requirement and three advanced science courses can be completed after the ninth grade.

In an independent study using a random sample of eleventh-grade students, 99.6 percent of North Carolina's students report having taken Biology.[1] The percentage taking Biology does not vary [illegible] ethnic group, or parental education. The second section of Table 1 compares the ethnic composition of Biology classes with the ethnic composition of K-12 pupil membership.[2] The ethnic distribution in Biology is similar to the ethnic distribution in overall student membership.

The third section of Table 1 compares parental education levels of Biology students with [illegible] education levels of students in the eighth grade statewide.[3]

---

[1] Regional Education Board (1987) and National Assessment of Educational Progress (1986) Assessment in Mathematics.

[2] Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1987*.

[3] Teachers recorded education level of the most educated parent of eighth-grade students taking the California Achievement Tests in 1986-87. Biology students recorded education level of their most educated parent.

Table 1

North Carolina Biology Students[1] Compared with 1987-88 First-Month Average Daily Membership in Ninth, Tenth, and Eleventh Grades

GRADE	ADM	Biology Students[1]	Percent of ADM	Percent of Biology Students
Ninth	90,202	6,431	7.1	8.3
Tenth	85,783	64,314	75.0	83.4
Eleventh	80,154	4,682	5.8	6.1
Other		1,727		2.2
TOTAL	256,139	77,154	30.1	100.0

1987-88 K-12 Pupil Membership[2] and Biology Students by Ethnic Group

Ethnic Group	Membership	Percent of Membership	Biology Students[1]	Percent of Biology
American Indian	17,756	1.6	1,220	1.6
Black	328,670	30.3	22,270	29.0
White	726,181	66.9	52,185	67.9
Other	12,337	1.1	1,138	1.5
TOTAL	1,084,944	99.9	76,813	100.0

Parental Education of Eighth-Grade and Biology Students

Parental Education	Eighth Grade Students[3]	Percent of Students[3]	Biology Students[1]	Percent of Biology
Eighth Grade or Less	2,186	2.9	1,074	1.4
8th to 12th	11,126	14.5	9,413	12.4
High School Graduate	31,474	41.0	24,059	31.7
More Than High School	31,893	41.6	41,297	54.5
TOTAL	76,679	100.0	75,843	100.0

[1]As identified in the 1987-1988 administration of the Biology End-of-Course Test.
[2]Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1988*.
[3]As identified in 1987-88 administration of the California Achievement Test.

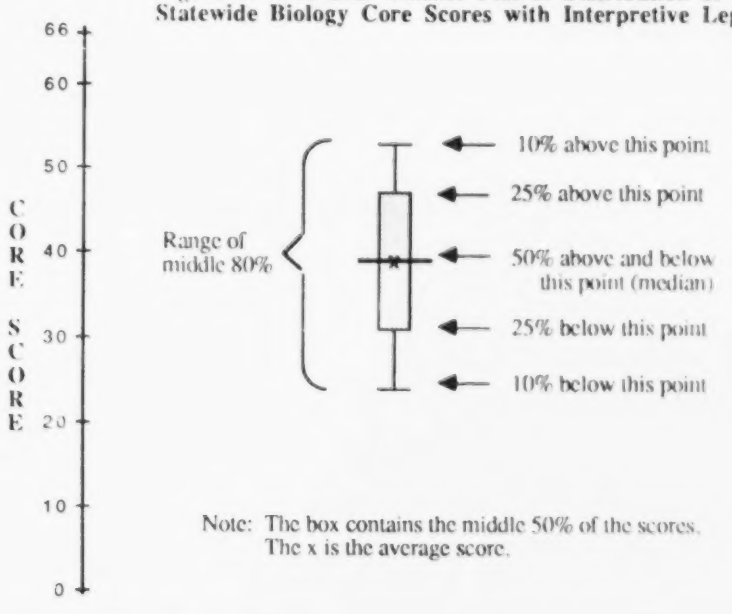
Student Performance on the Core Test

Summary scores for the 1988 core test, and for comparison, summary scores for the 1987 administration, are presented in Table 2. In 1988, the average score for the 77,154 students taking the core test was 39.0, or 59.1 percent correct. On average, 1988 Biology students scored one raw score point higher than 1987 Biology students. See the Appendix for both the 1987 and 1988 state percentile distributions.

Group achievement on tests, whether for schools, school systems, or the state, is usually reported using summary numbers such as the average or median which indicate typical performance for the group. One number, whether it is the average or the median score, provides limited information about performance. *Box and whisker plots* are graphs which describe not only typical performance, but also the performance of most of the students by showing the spread of scores. Box and whisker plots allow the comparison of the high and low scores for different groups as well as the middle scores.

Figure 1 shows how to interpret the box and whisker plots using statewide Biology scores for 1988. The *box* represents the middle 50 percent of scores with the median represented by a horizontal line inside the box. An 'x' inside the box shows the location of the average (mean) score. The *whiskers* extend up to the 90th percentile and down to the 10th percentile. The entire figure shows the range of the middle 80 percent of scores. As can be seen in Figure 1, the middle 50 percent of Biology students answered between 31 and 47 items correctly. Ten percent of the students scored above 53 and ten percent scored below 24.

Figure 1. Box and Whisker Plot of Distribution of 1988 Statewide Biology Core Scores with Interpretive Legend



Note: The box contains the middle 50% of the scores. The x is the average score.

Table 2

Average Performance on Biology Core Test

	1987			1988		
	Number Tested	Average Score	Average Percent Correct	Number Tested	Average Score	Average Percent Correct
State	82,646	38.0	57.6	77,154	39.0	59.1
Sex						
Male	40,715	38.1	57.8	38,329	39.2	59.4
Female	41,312	38.0	57.6	38,534	38.8	58.9
Ethnic Group						
American Indian	1,253	33.4	50.6	1,220	35.3	53.6
Black	23,219	32.8	49.6	22,270	33.3	50.4
White	56,626	40.3	61.1	52,185	41.5	62.9
Other	1,021	40.4	61.2	1,138	40.4	61.2
Parental Education						
Less than Eighth Grade	1,137	31.7	48.1	1,074	32.1	48.6
Eighth to Twelfth	9,744	32.6	49.4	9,413	33.3	50.4
High School Graduate	25,563	35.7	54.1	24,059	36.2	54.9
More than Twelfth	42,218	41.3	62.6	41,297	42.3	64.1
Grade in School						
Nine	6,261	43.5	65.8	6,431	45.6	69.1
Ten	69,888	37.9	57.5	64,314	38.9	58.9
Eleven	4,581	33.6	50.9	4,682	33.6	50.9
Other	1,916	34.3	52.0	1,727	34.1	51.6
Type of Class						
Applied/Technical	21,651	33.5	50.8	20,520	33.2	50.3
Academic	54,109	40.1	60.8	53,288	41.2	62.4

Table 2 also shows average performance on the 66-item core test by sex, parental education, ethnic group, grade in school, and type of class. Figures 2 through 5 show the distributions of Biology scores by various groups using box and whisker plots. Average performance for males was similar to average performance for females, but the range of scores for females is somewhat narrower than the range for males.

On average, white students and 'other' students scored higher than American Indian students and black students. The average score and score distribution for students who have parents educated beyond high school are higher than those for students who have less educated parents.

The largest difference in average core scores appeared among students taking Biology in different grade levels. Only 7.1 percent of the ninth-grade class took Biology; this select group of high achieving students scored higher than any other group. The average score for ninth-grade students was 45.6, more than 6 points higher than the average score for tenth-grade students, and 12 points higher than the average score for eleventh-grade students. In Figure 5 it can be seen that more than 75 percent of the ninth grade Biology students scored 40 or more while less than 50 percent of tenth grade students scored above this point. Just over 25 percent of eleventh grade students scored above this point.

Approximately 72.2 percent of Biology students are in an academic course while 27.8 percent are in an applied/technical course. The difference between the academic and applied/technical Biology courses is not in curricular goals and objectives, but in depth of coverage, emphasis on mathematics, and emphasis on applications in everyday life and work. On average, students in academic Biology classes scored significantly higher than students in applied/technical Biology classes.

Anticipated Final Grades and Scores on the Core Test

Biology teachers were asked to record each student's anticipated final grade on each answer sheet after the test was administered. Final grades were recorded for 74,853 of 77,154 Biology students. Table 3 gives the average score for various grade groups on the core test and the percentages of students who were to receive the various grades for both 1987 and 1988. A consistent difference of 4 to 5 raw score points was observed between score averages for different anticipated final grades. This pattern is an indication of test validity in that the results parallel the grading practices of teachers. The average for 'C' students was similar to the statewide average, placing these students in the middle of the score distribution.

Box and whisker plots for the score distributions for each letter grade are displayed in Figure 6. The plot illustrates the spread of score points within letter grades and overlap in distributions across letter grades. For example, while the typical 'D' student scored well below the typical 'C' student, more than 25 percent of 'D' students received an above average core score.

Figure 2. Distributions of Biology Core Scores by Sex -- 1988

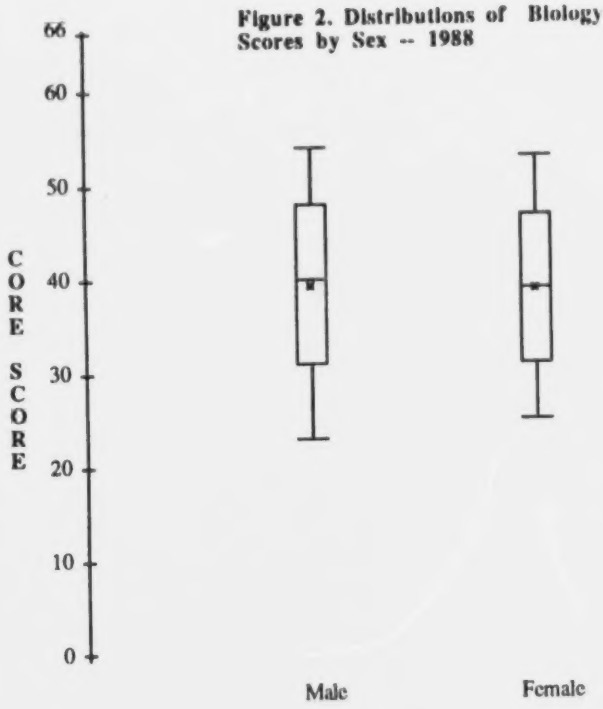


Figure 3. Distributions of Biology Core Scores by Ethnic Group -- 1988

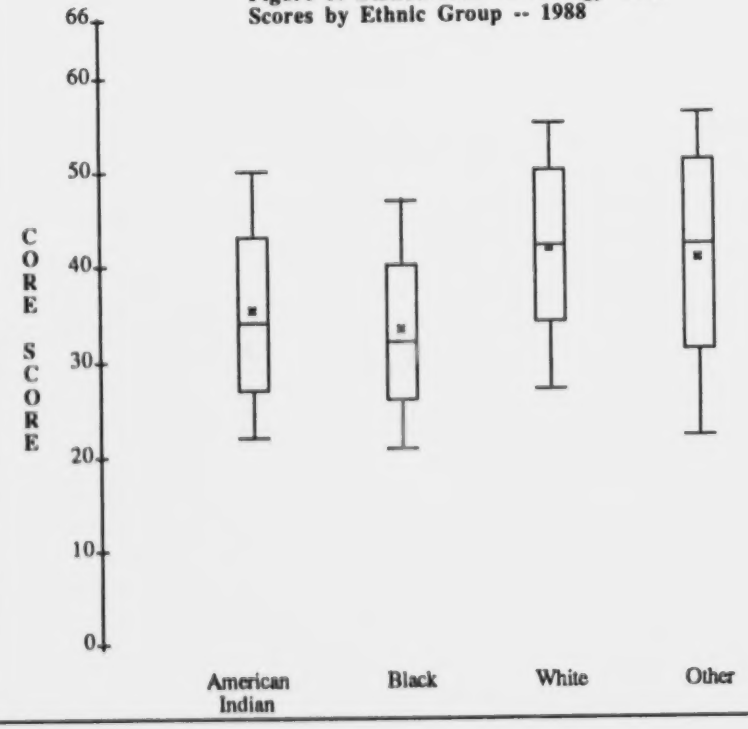


Figure 4. Distributions of Biology Core Scores by Parental Education -- 1988

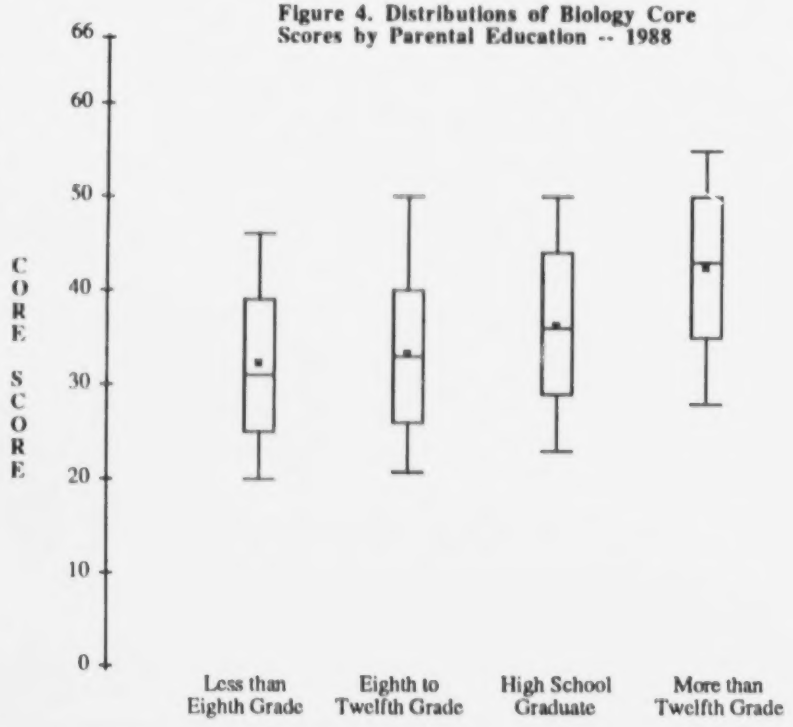


Figure 5. Distributions of Biology Core Scores by Grade Level -- 1988

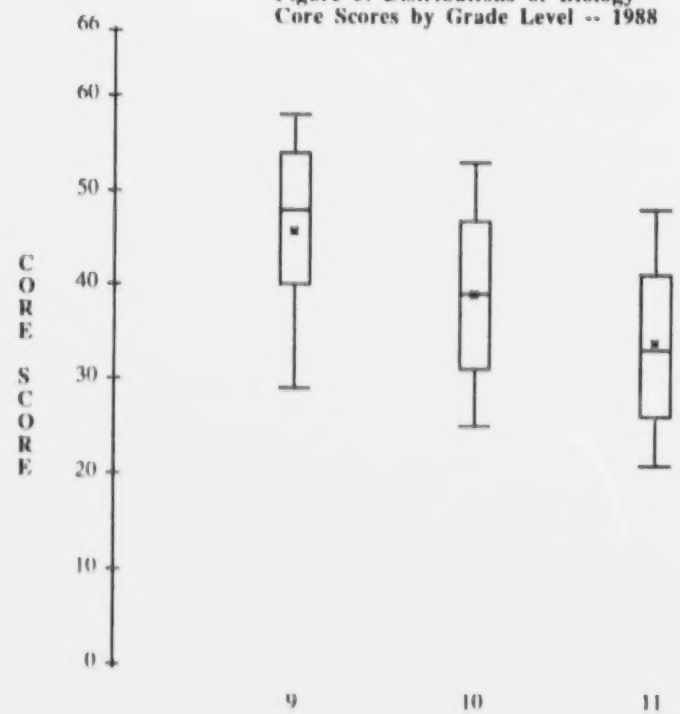
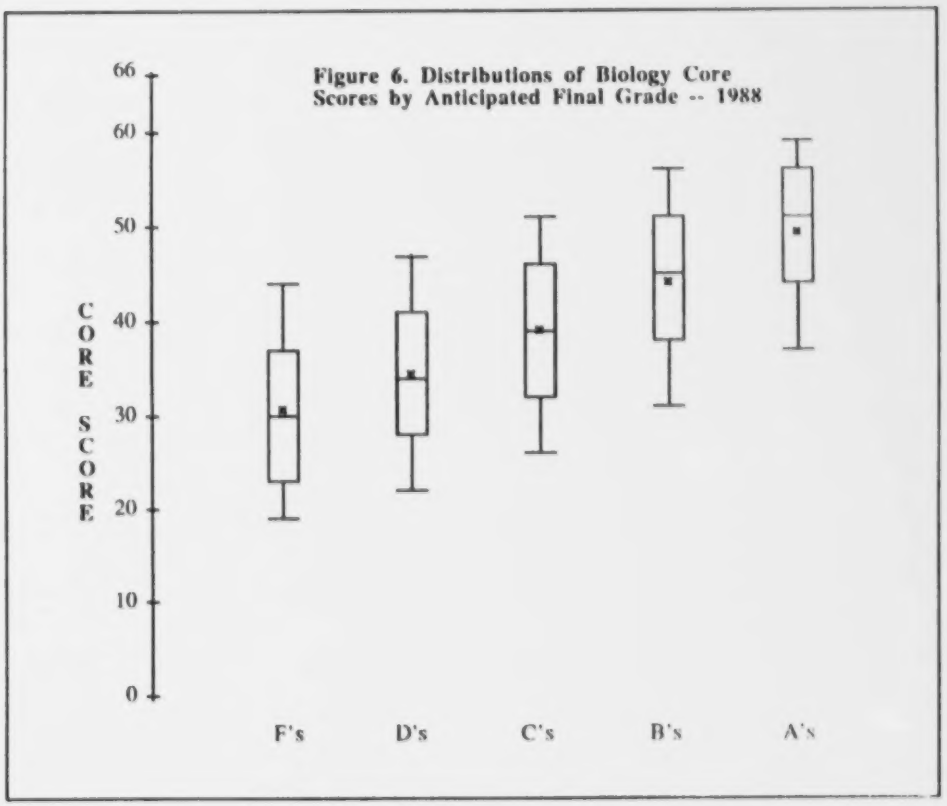


Table 3

Average 66-Item Core Scores by Anticipated Final Grade and Percentage of Students Receiving Each Grade*: Biology End-of-Course Test: 1987-88

	1987		1988	
Grades	Average Scores	Percentages	Average Scores	Percentages
A	47.7	10.1	49.2	10.1
B	42.7	22.4	44.0	22.4
C	38.2	30.4	39.1	30.6
D	34.2	24.1	34.5	24.2
F	30.5	13.0	30.6	12.7

* 1987: N=72,342 1988: N=74,853



Average Performance on the Curriculum Test

Table 4 shows statewide average performance on the 236-item curriculum test and the 8 goals of the Biology curriculum. Statewide performance on all goals and objectives is presented in Table 5. All objectives were measured by at least 7 test items. Goal and objective scores yield important information about performance within specific areas in the curriculum. The average percentage correct of all items measured was 58.8.

It is important for students to understand the nature of biology as a science and how it relates to them as human beings. Overall goal performance was high for two of the three goals which relate biology to humans: Goal 1: "understand the nature and relationship of science to human endeavor" (60.8 percent correct) and Goal 6: "understand the biology of humans" (64.1 percent correct). Performance on Goal 8, "understand how the dynamics of biology are relevant to people", was slightly lower than the average performance on all items measured. Objective performance within Goal 1 was highest for a critical area for knowing about biology as scientific endeavor: Objective 1.2, "understand the methods of science". On Goal 6, all objectives had performance above 60 percent correct. In understanding that biology changes and that these changes are relevant to people (Goal 8), performance was highest on knowledge of recent advances and discoveries in biology.

Performance on two goals which deal with the basic structures and processes of life was lower than that of the other goal areas: Goal 2, "understand the nature of life", and Goal 3, "understand the continuity of life". Within Goal 2, scores were highest (70.5 percent) on understanding that biology is the science of life and lowest on knowing the difference between living and nonliving things (38.9 percent). Objective 3.1, concerning inheritance of characteristics from parent organisms, had the highest average percent correct of any objective in Goal 3.

Goal 4, "understand the nature of organisms", deals with the taxonomy of living things, including general knowledge of anatomy, physiology, and major representatives of the various kingdoms. Average performance on this goal (57.4 percent) was slightly below the average for all biology test items.

A relatively new area in the biology curriculum presented in the *Standard Course of Study* and the *Teacher Handbook* involves understanding the behavior of living things (Goal 5). Given that this goal was not emphasized in the previous biology curriculum, the average performance of 59.4 shows that teachers are including this new area in their courses. As in 1987, performance was weakest on Objective 5.2, "have a general understanding of plant tropism."

Understanding ecology, including the nature of populations, communities, and ecosystems, and the impact of human behavior on the environment, is the focus of Goal 7. Average performance on the entire goal was 62.4 percent, or about 3.6 percentage points above the average over all biology test items.

Statewide performance across all Biology goals and objectives shows areas of strength and areas in which improvement is needed. However, given the broad scope of the biology curriculum, average performance on the goals is consistent, indicating that, in general, teachers are covering all curricular areas and are not concentrating on a few areas at the expense of others. As schools and school systems examine their own performance on these goals and objectives, they can identify patterns of strengths and weaknesses relative to statewide performance.

Table 4

1988 Summary Results for Biology: 66-Item Core Test and 236-Item Curriculum Test

STATE REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	29	21	66	66	236	236
ALL STUDENTS TESTED													
	77154	60.8	53.7	55.7	57.4	59.4	64.1	62.4	56.1	39.0	59.1	138.7	58.8
SEX													
MALE	38329	61.5	53.6	55.6	58.0	59.7	64.0	63.8	56.4	39.2	59.4	139.6	59.1
FEMALE	38534	60.2	53.9	55.7	56.8	59.1	64.4	60.9	55.8	38.8	58.9	138.1	58.5
PARENTAL EDUCATION													
LESS THAN 8TH	1074	50.3	44.6	46.0	50.3	48.2	54.6	50.7	44.4	32.1	48.6	114.7	48.6
8TH TO 12TH	9413	51.6	45.8	47.5	51.2	50.8	56.2	53.1	46.6	33.3	50.4	118.8	50.4
HIGH SCHOOL	24059	56.3	49.7	51.7	54.3	55.2	60.7	58.1	51.2	36.2	54.9	129.2	54.7
MORE THAN 12TH	41297	66.1	58.4	60.4	61.0	64.4	68.6	67.5	61.7	42.3	64.1	150.2	63.6

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 4, cont'd.

STATE REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
GRADE IN SCHOOL													
NINE	6431	70.0	64.1	66.2	64.6	68.6	72.5	71.9	67.3	45.6	69.1	161.3	68.3
TEN	64314	60.6	53.3	55.3	57.2	59.2	64.1	62.2	55.7	38.9	58.9	138.2	58.6
ELEVEN	4682	53.7	47.0	48.2	51.3	52.2	56.4	54.2	47.7	33.6	50.9	121.3	51.4
OTHER	1727	54.2	47.7	48.6	51.2	52.2	57.0	55.4	49.3	34.1	51.6	122.8	52.0
ETHNIC GROUP													
AMER.INDIAN	1220	55.2	49.4	50.2	51.8	54.1	59.1	55.7	50.8	35.3	53.6	126.2	53.5
BLACK	22270	51.2	47.3	47.7	51.8	50.4	56.3	53.4	46.4	33.3	50.4	119.4	50.6
WHITE	52185	65.0	56.5	59.2	59.9	63.3	67.7	66.3	60.3	41.5	62.9	147.3	62.4
OTHER	1138	61.4	58.1	58.3	56.4	60.2	64.7	63.5	59.8	40.4	61.2	142.9	60.6

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 5

1988 Summary Results for Biology Goals and Objectives

		STATE
GOAL 1:	UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR (28)	60.8
1.1:	KNOW ABOUT THE NATURE OF SCIENCE (7)	52.7
1.2:	UNDERSTAND THE METHODS OF SCIENCE (7)	68.9
1.3:	KNOW THE LIMITATIONS OF SCIENCE (7)	63.7
1.4:	KNOW ABOUT THE TECHNOLOGY OF SCIENCE (7)	57.8
GOAL 2:	UNDERSTAND THE NATURE OF LIFE (40)	53.7
2.1:	UNDERSTAND THAT BIOLOGY IS THE SCIENCE OF LIFE AND HAS MANY DIFFERENT COMPONENTS (7)	70.5
2.2:	KNOW THE DIFFERENCES BETWEEN LIVING AND NONLIVING THINGS (7)	38.9
2.3:	KNOW ABOUT THE CELL, THE BASIC UNIT OF LIVING THINGS (12)	53.1
2.4:	UNDERSTAND CHEMICAL PROCESSES OF LIFE (7)	54.6
2.5:	KNOW THAT LIVING THINGS EXIST IN A STATE OF DYNAMIC EQUILIBRIUM (7)	51.8
GOAL 3:	UNDERSTAND THE CONTINUITY OF LIFE (28)	55.7
3.1:	KNOW THAT LIVING THINGS RECEIVE CHARACTERISTICS FROM THE PARENT ORGANISM(S) (7)	60.4
3.2:	KNOW THAT GENES COMPOSED OF DNA ARE RESPONSIBLE FOR INHERITED CHARACTERISTICS (7)	55.2
3.3:	KNOW THAT ORGANIC VARIATION IS IMPORTANT AND NECESSARY FOR SPECIES SURVIVAL (7)	48.8
3.4:	KNOW ABOUT THE DIVERSITY OF LIVING THINGS (7)	58.3
GOAL 4:	UNDERSTAND THE NATURE OF ORGANISMS (14)	57.4
4.1:	HAVE A GENERAL KNOWLEDGE OF ANATOMY AND PHYSIOLOGY OF ORGANISMS (7)	47.5
4.2:	HAVE A GENERAL KNOWLEDGE OF MAJOR REPRESENTATIVES OF KINGDOMS OF LIVING THINGS (7)	67.3
GOAL 5:	UNDERSTAND THE BEHAVIOR OF LIVING THINGS (42)	59.4
5.1:	KNOW THAT FOR ALL ORGANISMS, SURVIVAL REQUIRES SUITABLE RESPONSES TO THE EXTERNAL ENVIRONMENT (7)	53.4
5.2:	HAVE A GENERAL UNDERSTANDING OF PLANT TROPISM (7)	49.6
5.3:	HAVE A GENERAL KNOWLEDGE OF INNATE BEHAVIOR (7)	62.6
5.4:	KNOW THE CHARACTERISTICS OF LEARNED BEHAVIOR (7)	76.1
5.5:	KNOW ABOUT BIOLOGICAL RHYTHMS (7)	56.3
5.6:	HAVE A GENERAL KNOWLEDGE OF ENVIRONMENTAL EFFECTS AND BEHAVIOR (7)	58.2

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 5, cont'd.

		STATE
GOAL 6:	UNDERSTAND THE BIOLOGY OF HUMANS (35)	64.1
6.1:	UNDERSTAND THE NATURE OF HUMAN ORIGIN AND DEVELOPMENT (7)	60.5
6.2:	HAVE A GENERAL KNOWLEDGE OF HUMAN ANATOMY (7)	63.8
6.3:	HAVE A GENERAL KNOWLEDGE OF HUMAN PHYSIOLOGY (7)	66.7
6.4:	HAVE A GENERAL KNOWLEDGE OF HUMAN REPRODUCTION (7)	67.7
6.5:	HAVE A GENERAL KNOWLEDGE OF MAJOR GENETIC AND ENVIRONMENTAL FACTORS THAT AFFECT HEALTH (7)	62.0
GOAL 7:	UNDERSTAND ECOLOGY (28)	62.4
7.1:	UNDERSTAND THE NATURE OF POPULATIONS (7)	67.5
7.2:	UNDERSTAND THE NATURE OF COMMUNITIES (7)	57.2
7.3:	UNDERSTAND THE NATURE OF ECOSYSTEMS (7)	64.6
7.4:	HAVE A GENERAL KNOWLEDGE OF THE INFLUENCES OF HUMAN ACTIVITY ON THE ENVIRONMENT (7)	60.1
GOAL 8:	UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE (21)	56.1
8.1:	KNOW ABOUT ADVANCES AND DISCOVERIES IN BIOLOGY (7)	59.7
8.2:	KNOW [illegible]T MANY CURRENT SOCIETAL ISSUES ARE RELATED TO BIOLOGY (7)	55.3
8.3:	KNOW THAT MANY CAREERS ARE AVAILABLE IN THE BIOLOGICAL SCIENCES (7)	53.2
	PERCENT CORRECT ALL ITEMS (236)	58.8
	AVERAGE SCORE ALL ITEMS (236)	138.7
	NUMBER OF STUDENTS TESTED	77154

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

APPENDIX

Biology Core and Goal Performance in Educational Regions and Public School Systems

Table 6 presents average performance on the 66-item core test, the 236-item curriculum test, and the 8 goals of Biology for the eight educational regions. Average core scores between educational regions differed by no more than 2.6 raw score points.

Average performance on the Biology test for the public school systems is listed in Table 7. School systems are arranged by educational region.

Biology Box and Whisker Plots of Core Scores for Educational Regions and Public School Systems

Figure 7 displays the distributions of core scores for eight educational regions using box and whisker plots. Public school system box and whisker plots are presented in Figures 8 through 15. See the interpretive legend in Figure 1 on page 4.

State Percentile Tables for 1987 and 1988

Tables 8 and 9 give summary statistics, the score distributions, and state percentiles for 1987 and 1988. The 1987 percentiles provide a baseline to which subsequent performance on the equivalent core tests can be compared.

Table 6

1988 Regional Summary Results for Biology: 66-Item Core Test and 236-Item Curriculum Test

STATE REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
NORTHEAST	4476	59.8	55.2	56.1	58.5	59.2	64.4	62.5	55.8	39.3	59.5	139.3	59.0
SOUTHEAST	8662	60.5	53.4	55.3	56.7	59.2	63.2	62.2	56.3	38.8	58.8	137.9	58.4
CENTRAL	12431	61.6	55.6	57.3	58.5	60.5	65.0	63.5	57.8	39.7	60.2	141.8	60.1
SOUTH CENTRAL	9733	57.8	51.1	52.4	55.5	56.7	62.2	59.7	53.6	37.3	56.5	132.6	56.2
NORTH CENTRAL	14076	61.8	55.1	57.6	58.2	60.4	65.1	63.4	56.6	39.7	60.2	141.4	59.9
SOUTHWEST	13336	60.0	52.9	54.4	56.4	58.1	63.3	60.8	55.2	38.3	58.0	136.3	57.7
NORTHWEST	8007	62.1	53.0	55.1	57.3	59.6	65.5	63.0	56.3	39.4	59.7	139.5	59.1
WESTERN	6433	62.3	53.1	56.8	58.4	61.6	64.5	64.7	57.0	39.9	60.5	141.3	59.9

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS.

Table 7

1988 School System Summary Results for Biology: 66-Item Core Test and 236-Item Curriculum Test

REGION NORTHEAST

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
BEAUFORT COUNTY	346	58.8	52.6	55.4	55.2	56.8	61.6	57.8	52.1	37.7	57.1	133.3	56.5
WASHINGTON CITY	279	62.9	51.5	55.9	56.5	60.1	64.0	60.7	55.9	38.9	58.9	138.2	58.6
BERTIE COUNTY	298	55.3	52.6	53.4	62.1	56.5	59.6	60.9	53.9	38.3	58.0	133.1	56.4
CAMDEN COUNTY	85	62.3	54.8	60.8	59.0	62.7	67.0	67.6	57.9	40.3	61.1	145.5	61.7
CHOWAN COUNTY	164	58.9	59.8	56.7	62.1	61.7	67.5	66.6	60.6	40.4	61.2	145.9	61.8
CURRITUCK COUNTY	160	59.7	60.1	61.3	64.6	68.2	70.1	71.9	61.3	42.7	64.6	153.2	64.9
DARE COUNTY	160	70.3	63.3	66.1	68.7	74.0	73.1	74.6	68.0	46.8	71.0	165.0	69.9
GATES COUNTY	127	57.8	51.9	50.3	56.0	51.1	59.3	57.8	48.7	36.5	55.3	127.5	54.0
HERTFORD COUNTY	383	49.4	48.6	47.7	53.8	48.7	56.9	52.3	44.7	33.2	50.2	118.6	50.3
HYDE COUNTY	70	49.0	46.2	45.1	44.5	48.0	55.8	54.3	48.0	32.9	49.9	116.0	49.2
MARTIN COUNTY	366	59.4	51.8	54.1	57.8	57.7	63.3	58.2	53.3	39.0	59.2	134.4	57.0
PASQUOTANK COUNTY	354	64.4	55.1	57.9	63.0	60.7	68.0	64.4	59.8	41.1	62.3	145.0	61.4
PERQUIMANS COUNTY	123	66.3	64.6	61.1	58.6	64.5	69.5	65.6	59.9	43.4	65.7	152.1	64.5
PITT COUNTY	1324	62.0	59.0	58.7	58.3	61.3	67.0	66.1	59.0	40.6	61.5	145.6	61.7
TYRRELL COUNTY	50	56.5	51.1	48.1	55.6	58.7	59.1	62.1	52.1	36.5	55.4	131.2	55.6
WASHINGTON COUNTY	187	56.1	48.1	52.0	55.7	55.9	57.9	58.7	49.2	36.4	55.1	127.8	54.2

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION SOUTHEAST

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
BRUNSWICK COUNTY	600	63.8	55.8	57.8	55.6	61.1	64.8	65.0	58.4	39.5	59.9	142.9	60.6
CARTERET COUNTY	532	63.5	54.0	58.3	56.5	63.8	66.5	67.0	62.6	41.4	62.7	145.6	61.7
NEW BERN-CRAVEN	899	62.1	54.1	56.6	59.1	59.8	64.2	65.8	56.4	39.7	60.1	141.0	59.7
DUPLIN COUNTY	567	57.1	51.2	52.5	56.2	53.7	59.4	58.7	52.8	36.0	54.6	129.9	55.1
GREENE COUNTY	187	58.7	49.1	55.4	54.7	57.8	65.8	63.5	55.3	38.8	58.8	136.0	57.6
JONES COUNTY	114	58.4	50.8	50.7	56.2	55.9	59.6	58.2	50.2	35.0	53.1	129.9	55.1
LENOIR COUNTY	436	59.0	50.1	52.0	52.8	55.7	59.0	58.0	51.2	36.8	55.7	129.5	54.9
KINSTON CITY	309	56.0	54.7	52.6	58.4	56.4	63.6	59.9	55.5	38.1	57.7	134.9	57.1
NEW HANOVER COUNT	1369	66.5	58.7	61.5	59.6	63.8	67.0	65.6	62.2	42.5	64.4	149.4	63.3
ONSLOW COUNTY	1199	59.4	52.1	54.3	55.9	58.2	62.8	62.1	55.2	38.4	58.1	135.9	57.6
PAMLICO COUNTY	153	58.1	54.9	53.9	64.9	57.9	65.1	65.4	57.7	38.8	58.8	139.9	59.3
PENDER COUNTY	394	57.6	50.8	53.8	56.9	58.8	63.9	60.6	53.7	38.1	57.8	134.8	57.1
SAMPSON COUNTY	474	57.7	51.2	51.7	54.5	56.8	60.1	57.3	52.5	36.6	55.5	130.7	55.4
CLINTON CITY	161	49.0	45.6	43.5	50.6	52.8	59.4	53.5	51.3	34.5	52.3	120.0	50.8
WAYNE COUNTY	930	60.2	52.1	53.3	55.7	59.2	61.7	59.7	53.9	37.8	57.3	134.9	57.2
GOLDSBORO CITY	338	54.4	51.7	51.7	53.1	56.5	57.9	58.4	53.8	36.1	54.7	129.5	54.9

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION CENTRAL

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
DURHAM COUNTY	1332	66.1	59.1	58.1	59.6	63.1	68.2	67.2	59.6	41.8	63.4	148.4	62.9
DURHAM CITY	459	50.0	46.1	47.2	48.2	49.7	56.1	48.9	45.0	32.4	49.1	116.0	49.2
EDGECOMBE COUNTY	367	53.8	50.6	50.1	51.7	54.4	60.3	58.3	51.4	35.0	53.1	127.6	54.1
TARBORO CITY	209	57.4	51.3	53.4	56.5	60.2	63.6	60.3	53.7	37.4	56.7	135.2	57.3
FRANKLIN COUNTY	333	59.1	51.9	55.4	56.3	58.6	61.7	60.2	55.1	38.0	57.6	135.3	57.3
FRANKLINTON CITY	105	56.7	56.5	55.6	58.5	56.4	65.8	59.9	55.8	39.7	60.2	137.5	58.2
GRANVILLE COUNTY	443	57.6	52.2	52.7	55.7	56.4	63.7	58.1	54.7	37.4	56.6	133.3	56.5
HALIFAX COUNTY	425	45.5	44.4	42.6	48.4	41.7	49.6	44.7	40.2	29.3	44.4	105.0	44.5
ROANOKE RPDS CITY	217	71.9	63.4	67.6	64.0	68.8	72.0	74.1	67.9	46.0	69.8	162.5	68.8
WELDON CITY	87	53.9	36.2	45.4	50.7	49.0	53.4	48.8	46.4	32.3	49.0	112.0	47.5
JOHNSTON COUNTY	1118	62.8	56.7	59.0	59.0	62.2	66.4	64.8	59.2	40.5	61.4	145.0	61.4
NASH COUNTY	798	60.9	53.6	54.8	59.0	60.7	64.1	62.4	56.8	38.5	58.3	139.4	59.1
ROCKY MOUNT CITY	346	58.3	53.7	54.1	56.5	57.5	58.5	59.2	52.5	37.1	56.2	133.1	56.4
NORTHAMPTON COUNT	310	53.5	46.8	48.0	49.3	51.5	55.7	53.1	46.8	34.2	51.9	119.9	50.8
VANCE COUNTY	572	54.2	46.8	51.1	52.4	53.4	57.7	56.3	51.2	34.4	52.1	124.7	52.8
WAKE COUNTY	4211	66.8	60.7	63.1	62.9	65.9	70.0	69.7	64.2	43.3	65.6	154.6	65.5
WARREN COUNTY	249	55.3	51.8	51.0	58.3	57.1	63.8	58.8	52.8	36.8	55.7	132.5	56.1
WILSON COUNTY	850	60.0	53.0	56.7	58.5	58.6	61.3	61.0	55.5	38.9	59.0	136.9	58.0

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION SOUTH CENTRAL

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
BLADEN COUNTY	452	53.7	46.3	48.3	52.7	53.9	58.3	54.9	49.1	34.3	52.0	123.1	52.2
COLUMBUS COUNTY	574	53.5	47.8	46.5	52.4	53.6	58.6	56.4	47.6	34.6	52.4	123.3	52.2
WHITEVILLE CITY	182	58.7	52.6	52.5	62.3	57.1	63.2	63.5	56.8	38.9	58.9	136.7	57.9
CUMBERLAND COUNTY	3216	60.8	53.3	54.7	56.7	59.1	64.4	61.5	56.0	38.8	58.8	138.0	58.5
HARNETT COUNTY	837	57.0	52.6	53.6	56.3	59.2	64.0	62.4	55.4	38.0	57.6	136.3	57.7
HOKE COUNTY	315	51.4	48.9	51.6	53.4	52.1	58.2	56.8	48.8	34.7	52.6	124.3	52.7
LEE COUNTY	510	58.7	46.1	52.9	56.3	58.4	62.6	61.0	51.8	37.4	56.6	132.0	55.9
MONTGOMERY COUNTY	291	64.7	56.2	60.0	59.4	60.1	68.8	67.2	59.1	42.2	64.0	146.3	62.0
MOORE COUNTY	626	60.5	52.8	52.8	54.3	56.4	61.5	62.1	56.9	38.6	58.4	135.0	57.2
RICHMOND COUNTY	545	57.8	49.5	52.0	57.3	56.7	62.3	59.9	52.7	36.7	55.6	132.0	55.9
ROBESON COUNTY	963	54.9	49.6	49.4	50.8	52.7	58.2	53.9	49.4	34.7	52.6	124.1	52.6
FAIRMONT CITY	152	51.2	45.7	47.4	46.2	48.6	52.9	50.5	47.9	32.9	49.8	115.5	48.9
LUMBERTON CITY	300	56.4	50.9	54.4	60.5	55.6	63.1	60.5	58.6	37.6	57.0	134.6	57.0
RED SPRINGS	127	51.6	51.6	44.1	47.5	51.6	56.1	52.6	51.9	33.8	51.2	121.0	51.3
SAINT PAULS CITY	105	57.4	46.6	51.9	54.5	51.7	59.5	58.4	50.9	36.8	55.7	126.4	53.6
SCOTLAND COUNTY	530	53.8	50.1	50.4	57.9	56.1	63.2	58.4	50.5	36.3	55.0	130.8	55.1

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION NORTH CENTRAL

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
ALAMANCE COUNTY	826	62.3	55.2	57.1	56.7	60.6	62.7	63.8	56.1	39.6	59.9	140.5	59.5
BURLINGTON CITY	532	64.9	56.4	58.6	59.6	62.8	67.1	65.4	59.1	41.9	63.5	146.1	61.9
CASWELL COUNTY	281	55.8	52.7	50.8	56.9	58.8	62.9	60.9	51.1	38.0	57.5	133.4	56.5
CHATHAM COUNTY	378	63.9	57.3	58.0	59.2	63.5	67.7	67.3	60.0	41.0	62.1	147.2	62.4
DAVIDSON COUNTY	1195	60.8	53.6	57.8	57.6	60.4	65.6	61.5	56.1	40.7	61.7	140.1	59.4
LEXINGTON CITY	235	58.9	52.2	54.1	57.7	60.0	65.2	61.3	54.1	38.6	58.5	137.1	58.1
THOMASVILLE CITY	169	53.5	45.9	52.7	51.4	50.9	56.1	53.8	50.1	34.4	52.1	121.9	51.6
FORSYTH COUNTY	2873	61.3	54.7	57.5	56.9	58.2	62.8	62.2	54.5	38.5	58.3	138.3	58.6
GUILFORD COUNTY	1777	64.0	56.7	59.5	61.5	63.6	67.7	64.7	59.4	41.2	62.5	146.9	62.2
GREENSBORO CITY	1436	62.1	57.5	58.8	59.9	61.1	65.8	65.1	57.4	40.2	60.9	144.2	61.1
HIGH POINT CITY	506	60.0	56.2	57.5	57.6	60.3	66.3	62.7	57.6	39.4	59.7	141.6	60.0
ORANGE COUNTY	304	63.1	50.9	53.4	57.1	57.6	62.9	61.6	56.0	38.0	57.5	136.2	57.7
CHAPEL HILL CITY	366	73.0	67.6	71.7	66.1	69.5	74.9	77.0	67.7	47.3	71.7	168.2	71.3
PERSON COUNTY	432	62.4	53.1	57.3	60.8	57.7	68.1	63.2	55.4	39.8	60.4	140.7	59.6
RANDOLPH COUNTY	944	59.4	53.1	55.2	56.0	57.9	64.8	63.3	56.5	38.3	58.0	137.8	58.4
ASHEBORO CITY	234	64.8	59.0	62.0	61.7	65.7	67.5	67.2	59.8	42.1	63.9	150.3	63.7
ROCKINGHAM COUNTY	250	64.6	59.2	59.9	60.8	59.6	65.7	60.2	56.4	40.5	61.3	143.8	60.9
EDEN CITY	262	57.9	50.5	55.3	57.5	59.3	63.5	61.8	54.9	38.1	57.8	135.9	57.6
WEST. ROCKINGHAM	275	60.1	54.7	53.8	55.2	59.8	62.2	63.4	56.2	38.6	58.5	137.9	58.4
REIDSVILLE CITY	284	55.0	50.7	54.5	55.2	61.1	60.8	61.5	50.6	37.3	56.6	133.5	56.6
STOKES COUNTY	525	60.9	50.7	53.7	52.3	60.0	64.0	58.8	54.5	37.5	56.8	135.2	57.3

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION SOUTHWEST

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
ANSON COUNTY	380	52.0	46.6	48.4	53.7	48.7	57.8	53.9	50.7	33.7	51.1	120.7	51.1
CABARRUS COUNTY	876	62.4	53.1	55.1	56.9	58.3	64.8	63.7	57.9	39.8	60.2	139.3	59.0
KANNAPOLIS CITY	279	58.3	51.3	53.9	59.8	57.4	62.4	58.9	58.4	37.8	57.3	135.0	57.2
CLEVELAND COUNTY	558	57.0	50.6	52.6	53.3	56.3	60.1	60.2	53.0	36.6	55.5	131.0	55.5
KINGS MTN. CITY	267	64.2	55.9	54.1	55.3	59.9	63.1	62.4	55.6	38.3	58.1	139.6	59.2
SHELBY CITY	284	69.3	61.9	63.9	62.4	71.5	69.0	71.6	62.2	46.0	69.6	158.1	67.0
GASTON COUNTY	2358	57.7	49.5	52.7	55.3	59.2	61.9	59.1	54.3	37.4	56.7	133.0	56.3
LINCOLN COUNTY	700	55.4	48.2	51.2	54.5	54.1	60.7	57.5	51.7	35.7	54.1	127.7	54.1
MECKLENBURG COUNT	5012	61.0	54.2	54.5	56.3	57.1	63.5	60.1	54.4	38.3	58.0	136.3	57.8
ROWAN COUNTY	916	60.2	54.7	56.5	58.3	61.0	65.2	63.2	56.8	39.2	59.4	140.8	59.6
SALISBURY CITY	165	61.6	52.6	57.4	55.1	56.6	65.0	63.0	60.1	38.0	57.6	138.8	58.8
STANLY COUNTY	253	65.9	55.3	60.7	57.5	64.1	68.6	64.9	60.3	41.4	62.7	147.4	62.4
ALBEMARLE CITY	159	61.3	56.7	58.3	57.4	63.6	67.4	63.8	55.5	40.1	60.8	144.0	61.0
UNION COUNTY	925	63.0	56.6	57.0	58.6	59.5	66.3	64.3	58.1	40.3	61.1	142.8	60.5
MONROE CITY	204	54.2	50.1	49.5	55.4	53.6	60.2	59.7	51.8	35.5	53.9	128.0	54.2

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION NORTHWEST

REGION REPORT

GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
ALEXANDER COUNTY	393	57.6	49.4	51.9	55.3	56.5	62.5	[illegible]	52.8	36.6	55.5	131.7	55.8
ALLEGHANY COUNTY	138	54.9	50.1	48.9	56.7	56.9	62.1	[illegible]	49.2	36.0	54.5	129.8	55.0
ASHE COUNTY	270	61.9	52.2	58.5	57.8	61.6	68.8	66.1	56.3	41.1	62.3	143.0	60.6
AVERY COUNTY	187	58.8	48.8	54.4	56.0	57.8	63.8	59.7	50.1	38.2	57.8	132.9	56.3
BURKE COUNTY	965	59.3	51.7	52.9	56.9	56.4	62.2	62.8	53.8	37.9	57.5	134.4	57.0
CALDWELL COUNTY	777	63.9	53.1	56.0	59.0	61.1	67.9	66.1	57.7	40.4	61.3	143.1	60.6
CATAWBA COUNTY	929	62.6	54.6	57.4	57.0	62.5	67.4	65.6	59.6	40.7	61.7	144.1	61.1
HICKORY CITY	313	68.7	58.9	60.4	62.5	64.2	70.1	65.7	63.3	42.4	64.2	151.6	64.2
NEWTON CITY	178	62.8	53.9	54.8	55.6	60.4	64.0	63.4	54.9	40.4	61.2	139.3	59.0
DAVIE COUNTY	321	65.6	61.0	61.0	62.7	64.5	72.5	68.4	65.5	42.8	64.8	154.0	65.3
IREDELL COUNTY	735	59.2	49.4	50.9	55.4	56.2	61.3	57.1	50.8	36.8	55.7	130.1	55.1
MOORESVILLE CITY	194	61.4	52.5	59.1	60.6	61.8	67.0	67.1	59.0	40.4	61.1	143.8	60.9
STATESVILLE CITY	251	61.6	51.4	54.5	57.0	59.8	60.6	58.5	51.2	38.0	57.6	134.6	57.0
SURRY COUNTY	655	63.0	53.7	54.2	55.5	57.9	65.4	61.3	58.7	39.3	59.5	139.0	58.9
ELKIN CITY	88	65.1	55.7	62.5	65.2	60.6	68.4	63.5	58.7	41.4	62.8	146.7	62.1
MOUNT AIRY CITY	185	58.6	55.3	58.7	52.2	56.9	65.8	59.1	58.6	38.3	58.0	138.1	58.5
WATAUGA COUNTY	306	67.9	58.3	60.2	61.0	62.6	68.2	67.6	59.8	41.9	63.5	149.4	63.3
WILKES COUNTY	831	62.3	50.6	53.4	54.2	59.7	65.0	60.7	54.9	38.7	58.6	136.5	57.9
YADKIN COUNTY	371	64.0	54.5	52.1	59.0	59.4	67.9	64.7	54.9	40.3	61.0	140.9	59.7

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

Table 7, cont'd.

REGION WESTERN

REGION REPORT

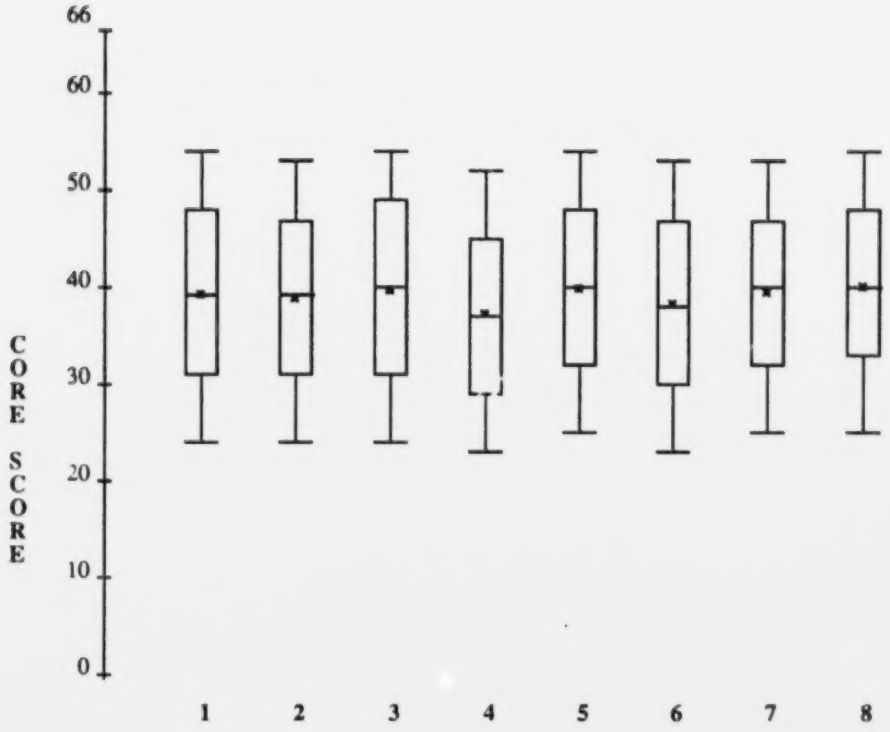
GOALS

GOAL 1: UNDERSTAND THE NATURE AND RELATIONSHIP OF SCIENCE TO HUMAN ENDEAVOR
GOAL 2: UNDERSTAND THE NATURE OF LIFE
GOAL 3: UNDERSTAND THE CONTINUITY OF LIFE
GOAL 4: UNDERSTAND THE NATURE OF ORGANISMS
GOAL 5: UNDERSTAND THE BEHAVIOR OF LIVING THINGS
GOAL 6: UNDERSTAND THE BIOLOGY OF HUMANS
GOAL 7: UNDERSTAND ECOLOGY
GOAL 8: UNDERSTAND HOW THE DYNAMICS OF BIOLOGY ARE RELEVANT TO PEOPLE

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		28	40	28	14	42	35	28	21	66	66	236	236
BUNCOMBE COUNTY	1536	61.9	52.8	55.2	56.0	61.3	63.9	64.1	56.8	39.6	60.0	139.7	59.2
ASHEVILLE CITY	275	59.4	53.0	54.1	58.3	60.1	64.3	60.0	53.6	38.6	58.5	136.9	58.0
CHEROKEE COUNTY	279	62.7	55.4	60.4	58.8	60.1	66.4	66.9	60.2	41.0	62.1	144.7	61.3
CLAY COUNTY	87	65.8	57.7	63.2	59.5	61.0	64.7	65.2	59.0	39.7	60.2	146.5	62.1
GRAHAM COUNTY	88	56.3	44.7	51.5	48.7	57.3	60.2	60.8	46.9	37.8	57.2	127.0	53.8
HAYWOOD COUNTY	573	59.1	49.1	54.8	56.7	61.3	59.2	62.8	52.3	38.1	57.7	134.4	56.9
HENDERSON COUNTY	577	64.3	53.4	57.1	60.2	63.8	67.8	67.2	58.4	41.2	62.4	144.8	61.4
HENDERSNVLLE CITY	149	65.5	56.5	62.5	60.9	60.5	64.4	62.8	56.4	40.6	61.5	144.3	61.2
JACKSON COUNTY	266	63.9	53.9	59.7	58.3	63.2	64.8	65.8	60.8	40.5	61.4	144.8	61.3
MACON COUNTY	233	66.8	59.4	60.6	65.1	64.6	69.5	67.5	60.8	42.7	64.7	151.7	64.3
MADISON COUNTY	192	54.8	46.5	50.7	57.0	57.8	62.4	61.1	54.6	36.9	55.9	130.3	55.2
MCDOWELL COUNTY	494	62.4	51.3	55.1	59.2	61.1	63.4	63.6	58.1	39.4	59.8	139.5	59.1
MITCHELL COUNTY	187	61.7	50.5	56.7	58.0	62.5	65.5	61.8	54.2	39.2	59.3	139.3	59.0
POLK COUNTY	79	56.6	45.5	54.1	56.9	58.8	62.5	57.1	51.1	36.9	55.9	130.5	55.3
TRYON CITY	53	62.9	60.1	60.5	62.4	63.9	68.5	67.7	57.6	40.1	60.8	149.2	63.2
RUTHERFORD COUNTY	706	62.6	56.6	56.6	58.8	62.0	65.3	66.9	56.8	40.7	61.7	143.8	60.9
SWAIN COUNTY	124	63.8	57.3	56.1	60.4	63.1	67.9	63.7	62.0	41.6	63.0	146.0	61.9
TRANSYLVANIA COUN	358	67.4	56.5	65.7	64.5	67.6	69.3	71.4	64.2	43.9	66.6	155.0	65.7
YANCEY COUNTY	177	61.0	47.9	52.8	55.4	55.9	60.5	58.6	50.4	36.0	54.5	130.5	55.3

NOTE: THE NUMBER OF ITEMS IN EACH GOAL AREA IS DIRECTLY PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. FIVE FORMS OF A 100-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM. SIXTY-SIX OF THE 100 ITEMS WERE COMMON ACROSS THE FIVE FORMS (CORE). THE REMAINING 34 ITEMS VARIED BY FORM, SO THAT 236 ITEMS WERE MEASURED IN EVERY CLASSROOM. GOAL AREAS INCLUDE BOTH CORE AND VARIABLE ITEMS. CAUTION SHOULD BE USED WHEN INTERPRETING RESULTS BASED ON SMALL NUMBERS OF STUDENTS OR ITEMS.

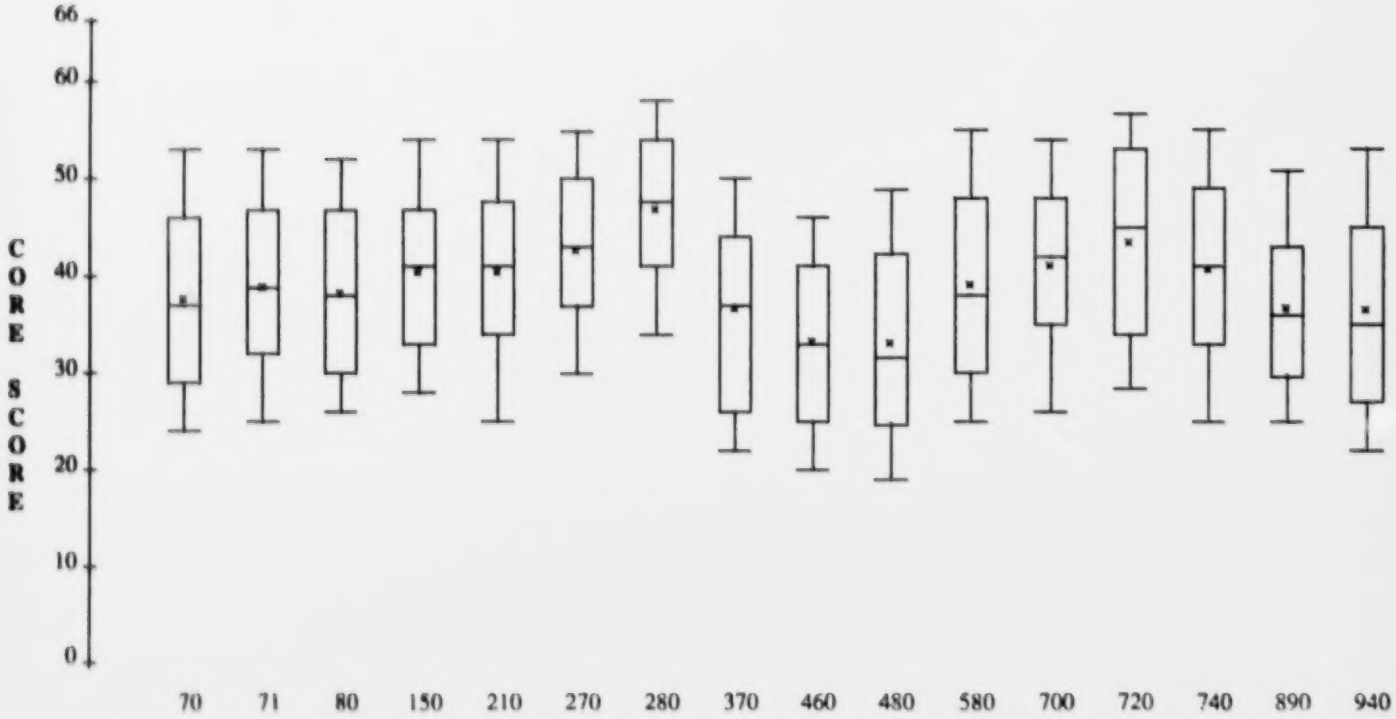
Figure 7. Distributions of Biology Core Scores by Regions -- 1988



Regions:

1	Northeast	5	North Central
2	Southeast	6	Southwest
3	Central	7	Northwest
4	South Central	8	Western

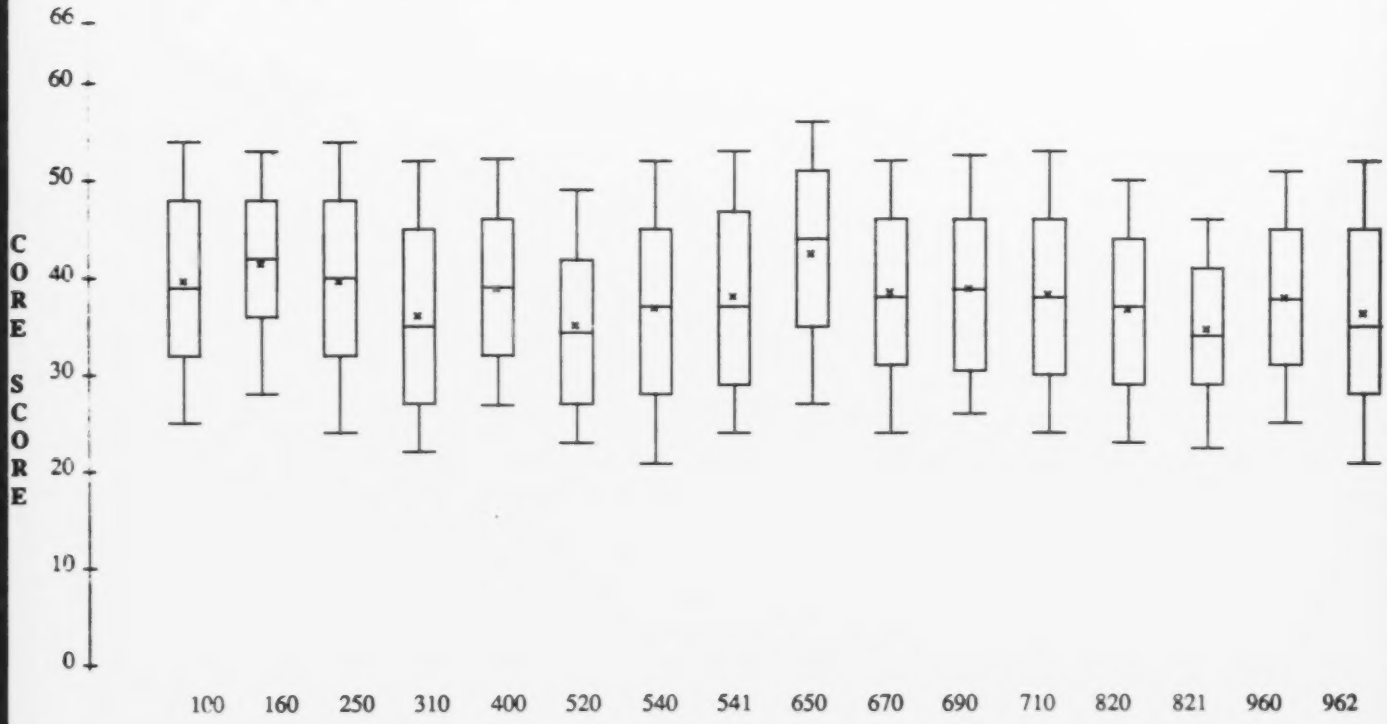
Figure 8. Distributions of Biology Core Scores by School Systems in the Northeast Region -- 1988



Northeast Region School Systems:

070 Beaufort Co.	210 Chowan Co.	460 Hertford Co.	720 Perquimans Co.
071 Washington City	270 Currituck Co.	480 Hyde Co.	740 Pitt Co.
080 Bertie Co.	280 Dare Co.	580 Martin Co.	890 Tyrrell Co.
150 Camden Co.	370 Gates Co.	700 Pasquotank Co.	940 Washington Co.

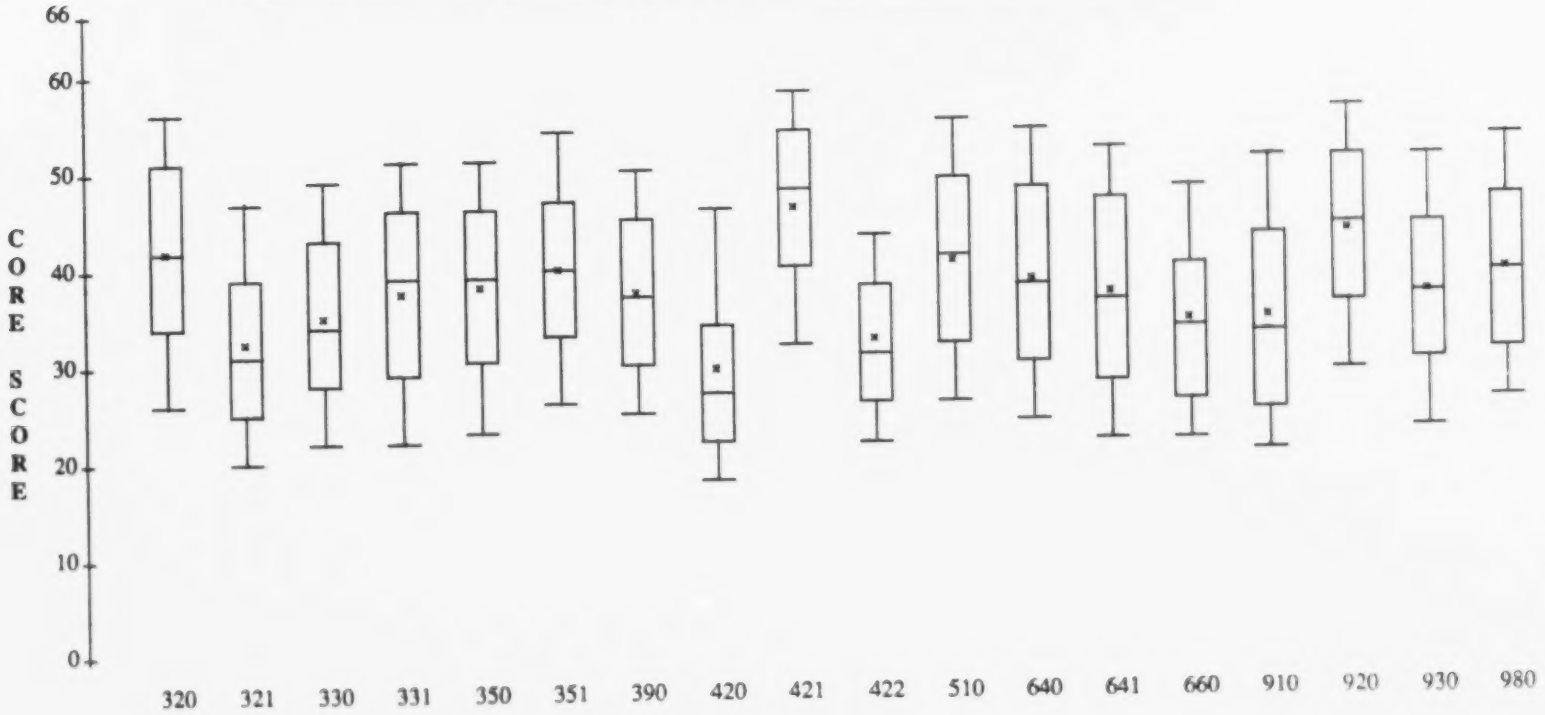
Figure 9. Distributions of Biology Core Scores by School Systems in the Southeast Region -- 1988



Southeast Region School Systems:

100 Brunswick Co.	400 Greene Co.	650 New Hanover Co.	820 Sampson Co.
160 Carteret Co.	520 Jones Co.	670 Onslow Co.	821 Clinton City
250 Craven Co.	540 Lenoir Co.	690 Pamlico Co.	960 Wayne Co.
310 Duplin Co.	541 Kinston City	710 Pender Co.	962 Goldsboro City

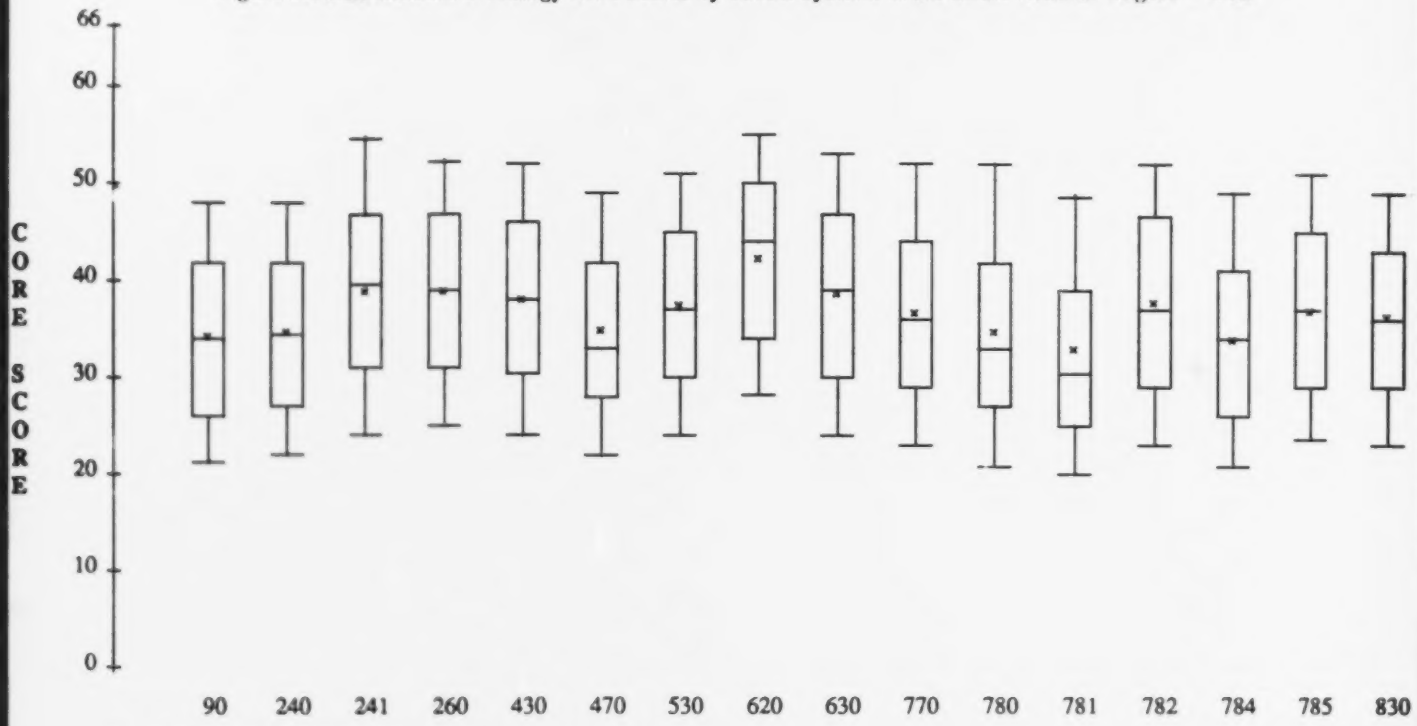
Figure 10. Distributions of Biology Core Scores by School Systems in the Central Region -- 1988



Central Region School Systems:

320 Durham Co.
321 Durham City
330 Edgecombe Co.
331 Tarboro City
350 Franklin Co.
351 Franklinton City
390 Granville Co.
420 Halifax Co.
421 Roanoke Rapids City
422 Weldon City
510 Johnston Co.
640 Nash Co.
641 Rocky Mount City
660 Northampton Co
910 Vance Co.
920 Wake Co.
930 Warren Co.
980 Wilson Co.

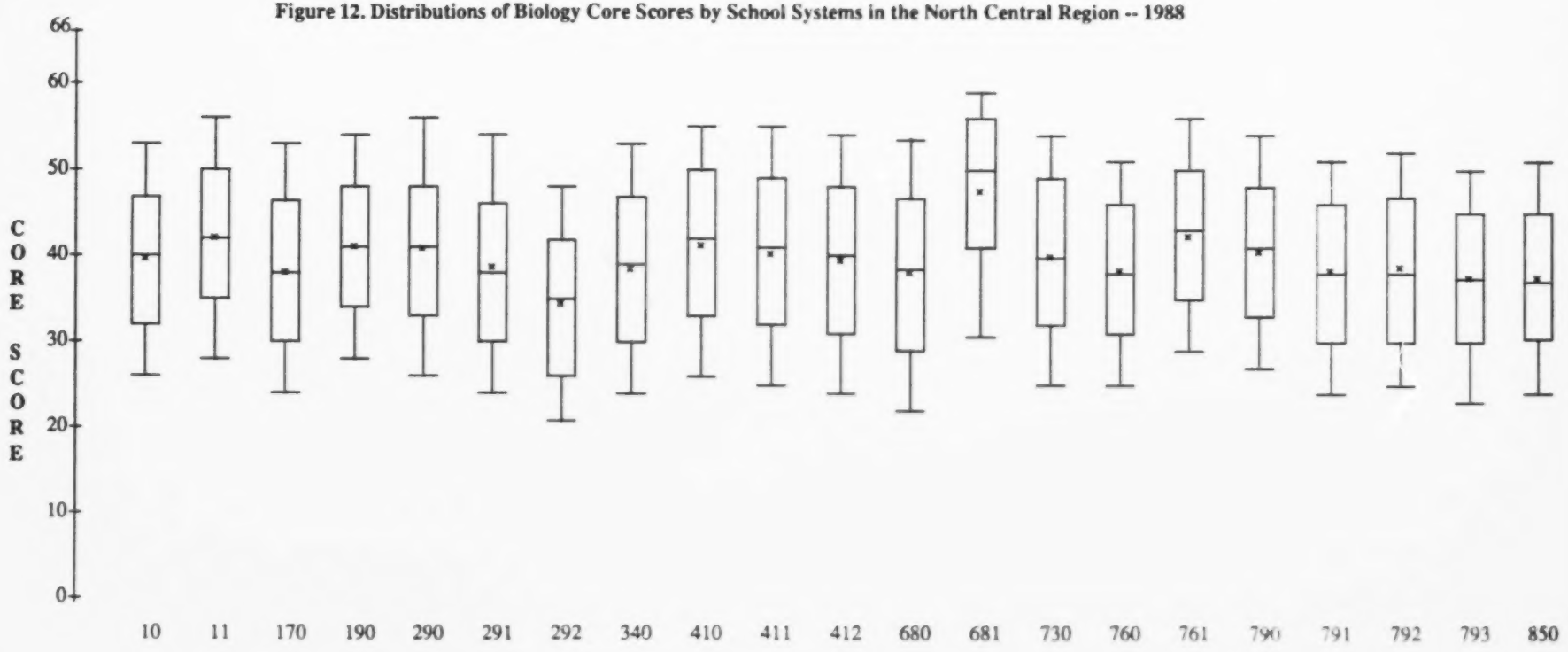
Figure 11. Distributions of Biology Core Scores by School Systems in the South Central Region -- 1988



South Central Region School Systems:

090 Bladen Co.	430 Harnett Co.	630 Moore Co.	782 Lumberton City
240 Columbus Co.	470 Hoke Co.	770 Richmond Co.	784 Red Springs City
241 Whiteville City	530 Lee Co.	780 Robeson Co.	785 St. Pauls City
260 Cumberland Co.	620 Montgomery Co.	781 Fairmont City	830 Scotland Co.

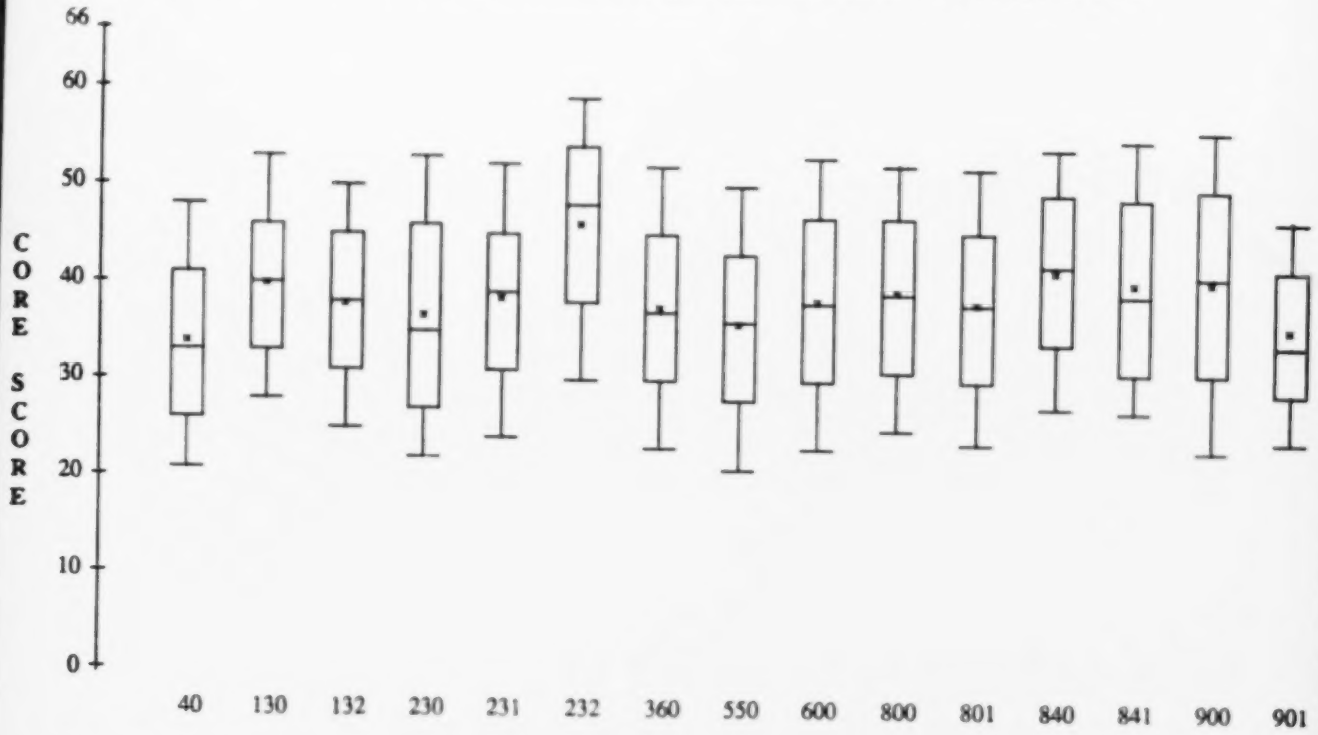
Figure 12. Distributions of Biology Core Scores by School Systems in the North Central Region -- 1988



North Central Region School Systems:

010 Alamance Co.	340 Forsyth Co.	760 Randolph Co.
011 Burlington City	410 Guilford Co.	761 Asheboro City
170 Caswell Co.	411 Greensboro City	790 Rockingham Co.
190 Chatham Co.	412 High Point City	791 Eden City
290 Davidson Co.	680 Orange Co.	792 Western Rockingham City
291 Lexington City	681 Chapel Hill City	793 Reidsville City
292 Thomasville City	730 Person Co.	850 Stokes Co.

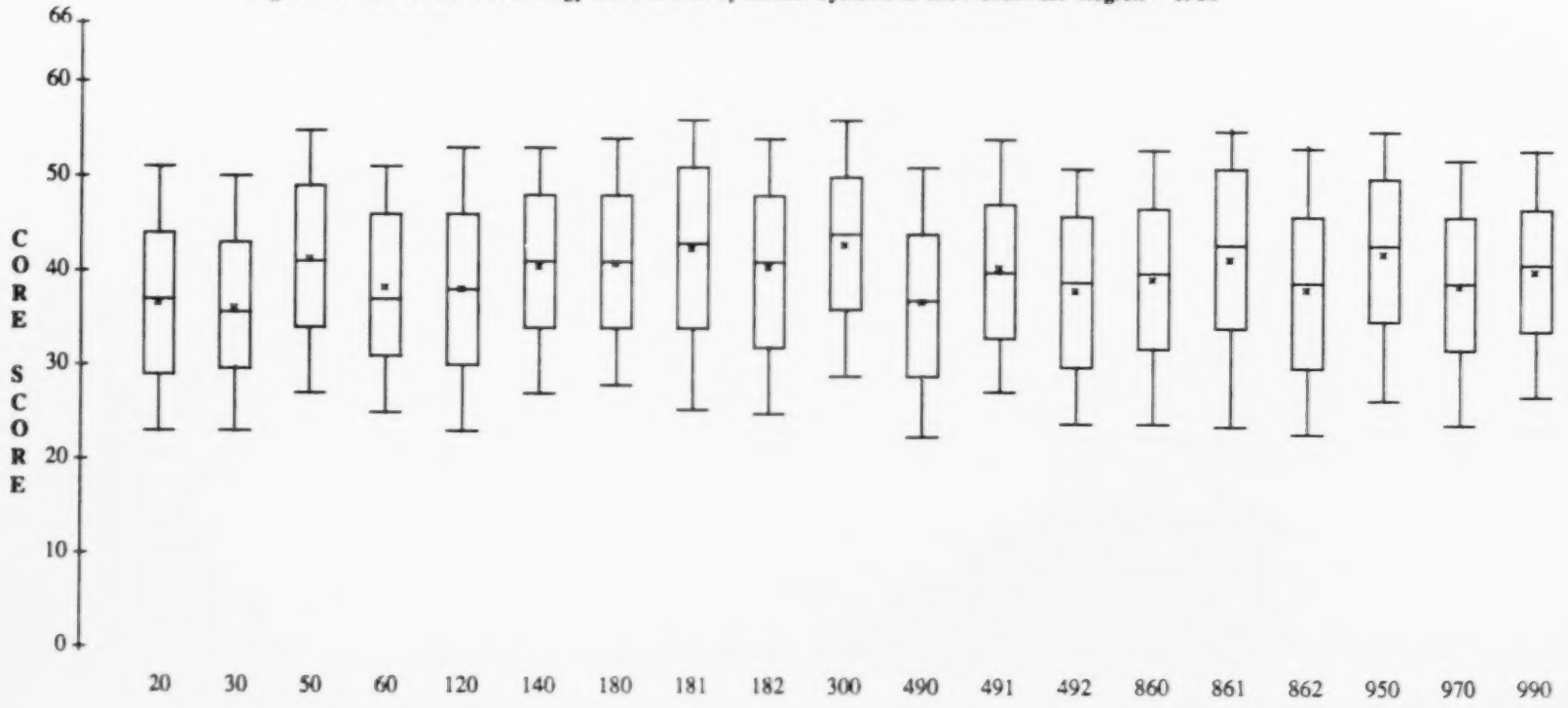
Figure 13. Distributions of Biology Core Scores by School Systems in the Southwest Region -- 1988



Southwest Region School Systems:

040 Anson Co.
130 Cabarrus Co.
132 Kannapolis City
230 Cleveland Co.
231 Kings Mountain City
232 Shelby City
360 Gaston Co.
550 Lincoln Co.
600 Mecklenburg Co.
800 Rowan Co.
801 Salisbury City
840 Stanly Co.
841 Albemarle City
900 Union Co.
901 Monroe City

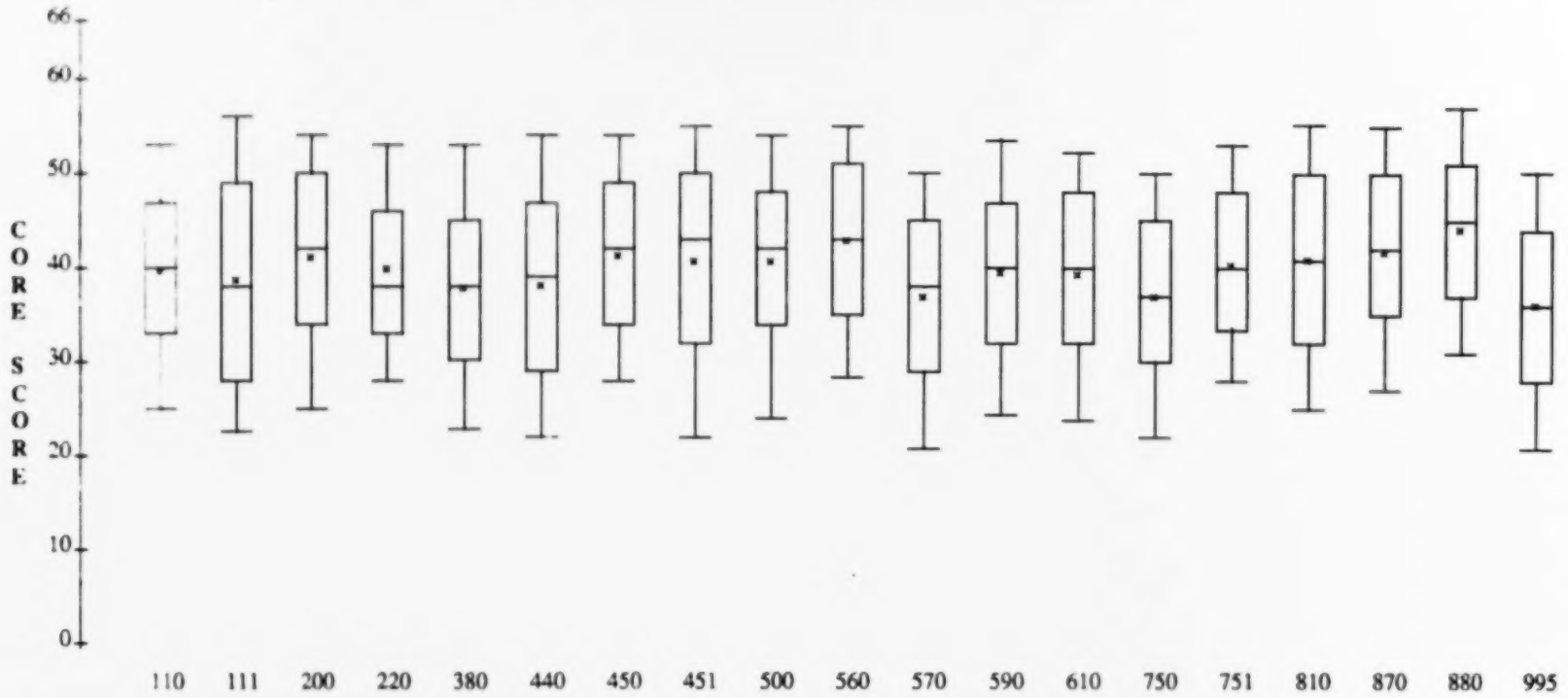
Figure 14. Distributions of Biology Core Scores by School Systems in the Northwest Region -- 1988



Northwest Region School Systems:

020 Alexander Co.	140 Caldwell Co.	490 Iredell Co.	862 Mt. Airy City
030 Alleghany Co.	180 Catawba Co.	491 Mooresville City	950 Watauga Co.
050 Ashe Co.	181 Hickory City	492 Statesville City	970 Wilkes Co.
060 Avery Co.	182 Newton-Conover City	860 Surry Co.	990 Yadkin Co.
120 Burke Co.	300 Davie Co.	861 Elkin City	

Figure 15. Distributions of Biology Core Scores by School Systems in the Western Region -- 1988



Western Region School Systems:

110 Buncombe Co.	440 Haywood Co.	570 Madison Co.	810 Rutherford Co.
111 Asheville City	450 Henderson Co.	590 McDowell Co.	870 Swain Co.
200 Cherokee Co.	451 Hendersonville City	610 Mitchell Co.	880 Transylvania Co.
220 Clay Co.	500 Jackson Co.	750 Polk Co.	995 Yancy Co.
380 Graham Co.	560 Macon Co.	751 Tryon City	

Table 8

State Percentile Table for 1987

End of Course Testing

STATE NORTH CAROLINA END-OF-COURSE TESTING PROGRAM
BIOLOGY --- 1987

SUMMARY STATISTICS ON CORE TEST

NUMBER OF STUDENTS WITH VALID SCORES	82646	HIGH SCORE	66
		LOW SCORE	6
MEAN	38.0	LOCAL PERCENTILES	RAW SCORE
STANDARD DEVIATION	10.3	90	52
		75	46
VARIANCE	106.8	50 (MEDIAN)	38
		25	30
MEAN PERCENT CORRECT	57.6	10	24

FREQUENCY DISTRIBUTION

RAW SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	STATE PERCENTILE
66	2	82646	0.00	100.00	99
65	11	82644	0.01	100.00	99
64	27	82633	0.03	99.98	99
63	56	82606	0.07	99.95	99
62	159	82550	0.19	99.88	99
61	203	82391	0.25	99.69	99
60	265	82188	0.32	99.45	99
59	432	81923	0.52	99.13	99
58	566	81491	0.68	98.60	98
57	679	80925	0.82	97.92	98
56	892	80246	1.08	97.10	97
55	1005	79354	1.22	96.02	95
54	1303	78349	1.58	94.80	94
53	1369	77046	1.66	93.22	92
52	1596	75677	1.93	91.57	91
51	1700	74081	2.06	89.64	89
50	1883	72381	2.28	87.58	86
49	1998	70498	2.42	85.30	84
48	2287	68500	2.77	82.88	82
47	2288	66213	2.77	80.12	79
46	2504	63925	3.03	77.35	76
45	2629	61421	3.18	74.32	73
44	2742	58792	3.32	71.14	69
43	2772	56050	3.35	67.82	66
42	2826	53278	3.42	64.47	63
41	2814	50452	3.40	61.05	59
40	2809	47638	3.40	57.64	56
39	2880	44829	3.48	54.24	52
38	2747	41949	3.32	50.76	49
37	2770	39202	3.35	47.43	46
36	2745	36432	3.32	44.08	42
35	2776	33687	3.36	40.76	39
34	2576	30911	3.12	37.40	36
33	2596	28335	3.14	34.28	33
32	2504	25739	3.03	31.14	30
31	2483	23235	3.00	28.11	27
30	2254	20752	2.73	25.11	24
29	2137	18498	2.59	22.38	21
28	1989	16361	2.41	19.80	19
27	2026	14372	2.45	17.39	16
26	1760	12346	2.13	14.94	14
25	1669	10586	2.02	12.81	12
24	1544	8917	1.87	10.79	10
23	1353	7373	1.64	8.92	8
22	1198	6020	1.45	7.28	7
21	1055	4822	1.28	5.83	5
20	875	3767	1.06	4.56	4
19	721	2892	0.87	3.50	3
LESS THAN 19	2171	2171	2.63	2.63	2

State Percentile Table for 1988

End Of Course Testing

STATE

NORTH CAROLINA END-OF-COURSE TESTING PROGRAM
BIOLOGY --- 1988

SUMMARY STATISTICS ON CORE TEST

NUMBER OF STUDENTS WITH VALID SCORES	77154	HIGH SCORE	66
		LOW SCORE	2
MEAN	39.0	LOCAL PERCENTILES	RAW SCORE
STANDARD DEVIATION	10.9	90	53
		75	47
VARIANCE	118.0	50 (MEDIAN)	39
		25	31
MEAN PERCENT CORRECT	59.1	10	24

FREQUENCY DISTRIBUTION

RAW SCORE	FREQUENCY	CUMULATIVE FREQUENCY	PERCENT	CUMULATIVE PERCENT	STATE PERCENTILE
66	1	77154	0.00	100.00	99
65	27	77153	0.03	100.00	99
64	56	77126	0.07	99.96	99
63	98	77070	0.13	99.89	99
62	192	76972	0.25	99.76	99
61	326	76780	0.42	99.52	99
60	437	76454	0.57	99.09	99
59	622	76017	0.81	98.53	98
58	819	75395	1.06	97.72	97
57	962	74576	1.25	96.66	96
56	1251	73614	1.62	95.41	95
55	1312	72363	1.70	93.79	93
54	1563	71051	2.03	92.09	91
53	1612	69488	2.09	90.06	89
52	1733	67876	2.25	87.97	87
51	1890	66143	2.45	85.73	85
50	2034	64253	2.64	83.28	82
49	1974	62219	2.56	80.64	79
48	2068	60245	2.68	78.08	77
47	2192	58177	2.84	75.40	74
46	2241	55985	2.90	72.56	71
45	2331	53744	3.02	69.66	68
44	2427	51413	3.15	66.64	65
43	2373	48986	3.08	63.49	62
42	2383	46613	3.09	60.42	59
41	2539	44230	3.29	57.33	56
40	2472	41691	3.20	54.04	52
39	2443	39219	3.17	50.83	49
38	2484	36776	3.22	47.67	46
37	2438	34292	3.16	44.45	43
36	2382	31854	3.09	41.29	40
35	2328	29472	3.02	38.20	37
34	2304	27144	2.99	35.18	34
33	2292	24840	2.97	32.20	31
32	2092	22548	2.71	29.22	28
31	2098	20456	2.72	26.51	25
30	1985	18358	2.57	23.79	23
29	1857	16373	2.41	21.22	20
28	1765	14516	2.29	18.81	18
27	1670	12751	2.16	16.53	15
26	1609	11081	2.09	14.36	13
25	1408	9472	1.82	12.28	11
24	1336	8064	1.73	10.45	10
23	1188	6728	1.54	8.72	8
22	1096	5540	1.42	7.18	6
21	954	4444	1.24	5.76	5
20	758	3490	0.98	4.52	4
19	707	2732	0.92	3.54	3
LESS THAN 19	2025	2025	2.62	2.62	2